

Do Experiences Studying Abroad Promote Dialectical Thinking?

Empirical Evidence from Chinese International Students

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Abstract: Our current work seeks to provide direct evidence on whether Chinese international students' experiences studying abroad promote dialectical thinking. We collected behavioral data from 258 Chinese international students studying in multiple regions. We found that when primed with studying abroad (relative to traveling abroad, their hometown culture and a control condition), participants were more likely to show tolerance for contradiction, meaning that they deemed both sides of contradictory scientific statements as convincing and rated them more favorably. Therefore, it is plausible that Chinese international students' experiences studying abroad promote their dialectical thinking regardless of their host culture. More work is needed to further this line of research by 1) extending these effects with other measures of dialectical thinking, 2) adopting differing paradigms to provide more robust findings, and 3) understanding how experiences studying abroad may promote dialectical thinking.

Keywords: Multicultural experiences, dialectical thinking, human universals, cultural differences, Chinese international students

Introduction

International education has been flourishing for several decades as the process of globalization has broadened and deepened. Psychologists are increasingly interested in examining the psychological impact of international students' experiences studying abroad. Prior work argues that experiences studying abroad should exert profound psychological impacts on international students in a variety of domains such as academic life, social life, and their personality development (Zimmermann & Neyer, 2013; Gieser, 2015). For instance, past work suggests studying abroad experiences exert positive influences on extraversion, openness, and agreeableness, and negative influence on neuroticism (Zimmermann & Neyer, 2013). Moreover, researchers have found that studying abroad programs enhance college students' foreign language learning and cultural adaptation self-efficacy (Cubillos & Ilvento, 2012; Milstein, 2005).

According to Open Doors Data from the Institute of International Education, China has become the leading source of international students in Western countries (IIE, 2019). For example, international students from China account for 42% of all international students in U.S. universities and colleges (IIE, 2019). Existing work regarding Chinese international students has mainly touched upon the following domains. First, considering that Chinese international students face great challenges in studying in other countries, a large body of work has looked at their mental health and emotional well-being health (Mori, 2011; Liu, 2009; Zhuang, Wong, Ng, & Poon, 2019; Choy & Alon, 2018), such as academic stress (Li, Chen, & Duanmu, 2009; Wei et al., 2007), loneliness (Sawir, Marginson, Deumert, Nyland, & Ramia, 2007), stress and coping (Xu, O'Brien, & Chen, 2019), depression and anxiety (Sümer, Poyrazli, & Grahame, 2014), and life satisfaction (Sam, 2001). Second, most Chinese international students are sojourners who temporarily reside in a foreign country mainly for education purposes, thus inevitably facing cultural adaptation issues. Extant work has studied their acculturation experiences (Smith & Khawaja, 2011; Wang & Mallinckrodt, 2006; Yan & Berliner, 2011; Spencer-Oatey & Xiong, 2006; Kashima & Loh, 2006), cultural identity (Maeder-Qian, 2018), social connectedness (Cao, Meng, & Shang, 2018; Hendrickson, Rosen, & Aune, 2011), social interactions (Trice, 2004; Billedo, Kerkhof, & Finkenauer, 2020) and sense of belonging, etc. Third, as a minority and marginalized social group, Chinese international students also face the detrimental consequences of stereotypes and prejudices (Poyrazli & Lopez, 2007; Ruble & Zhang, 2013). Additional aspects of

investigation involved their learning styles (Wong, 2004), migration intentions (Hazen & Alberts, 2006), multicultural personality (Oudenhoven & Zee, 2002) and decision making process (María Cubillo, Sánchez, & Cerviño, 2006). Despite the huge numbers and rapid rate of increase of Chinese international students across the globe, empirical research on the psychological antecedents and consequences of studying abroad, especially empirical work on how and why studying abroad experiences might reshape their psychological processes and behavioral patterns has been limited. Our current work therefore aims to reduce this research gap by looking at whether Chinese international students' studying abroad experiences influence their system of thought.

The psychological outcomes of multicultural experiences

Cultural psychologists contend that the impacts of individuals' multicultural experiences on their mental processes and behavioral patterns are mixed, paradoxical, and even seemingly contradictory. Past work suggests that the breadth and depth of multicultural experiences promote creativity (Leung, Maddux, Galinsky, & Chiu, 2008), cognitive flexibility (Ritter et al., 2012), large-scale cooperation (Buchan et al., 2009), generalized trust (Cao, Galinsky, & Maddux, 2014), etc. However, multicultural experiences may also lead to greater outgroup prejudice (Sparkman, Eidelman, & Blanchard, 2016), unethical behavior (Lu et al., 2017) and even exacerbate clashes of civilizations (Huntington, 1997). A recent review article provides researchers and practitioners a systematic review and a novel theoretical framework to tap into the psychological impacts of multicultural experiences as well as the underlying mediators and potential moderators of those effects (Maddux, Lu, Affinito, & Galinsky, 2020). We argue that Chinese international students' studying abroad experiences can be deemed as one form of multicultural experiences thus the abovementioned effects would also be applicable to the group of Chinese international students.

Dialectical thinking

Since the two renowned cultural psychologists Kaiping Peng and Richard Nisbett (1999) put forward the concept of dialectical thinking in an influential article published in the *American Psychologist* two decades ago, a large body of work that has been done to further this line of research (Ma-Kellams, Spencer-Rodgers, & Peng, 2011; Spencer-Rodgers & Peng, 2017; Wang et al., 2016). Peng and Nisbett (2001) contend that dialectical thinking contained in Eastern culture is not equivalent to the dialectic of Hegel and Marx in Western philosophy.

Dialectical thinking is a cognitive style or cognitive frame, which contains a series of closely associated cognitive processes (Spencer-Rodgers, Anderson, Ma-Kellams, Wang, & Peng, 2018). Dialectical thinking represents the ideological tradition based on Eastern philosophy, especially the lay epistemology of Taoism. Differences in dialectical thinking can exist not only between cultures, for example, Singaporeans and Chinese have higher dialectical thinking than North Americans and Western Europeans, but also within cultures, such as different degrees of dialectical thinking between liberals and conservatives (Talhelm et al., 2015). At the same time, dialectical thinking is not static, but domain-specific and context-dependent. It is influenced and shaped by a variety of factors, including sample characteristics (age, gender, development stage, cultural adaptation, etc.), specific domains (self, cognition, emotions, decision-making, intimacy, etc.) and contextual factors (Spencer-Rodgers et al., 2018).

Dialectical thinking consists of three core principles: principle of change (i.e., reality is a dynamic process), principle of contradiction (i.e., contradictory things can exist simultaneously), and principle of holism (i.e., everything is interrelated) (Spencer-Rodgers et al., 2018). First, the expectation of change means that East Asians believe that all phenomena and events in the world change in a cyclical manner, so the expectation of change is inevitable. However, Westerners' expectations of change tend to be stable or linear, either gradually increasing or decreasing. Second, tolerance for contradictions means that East Asians consider contradiction to be a natural, intrinsic, and unavoidable feature of all beings. Therefore, East Asians can accept phenomena that seem to be contradictory, and do not need to resolve them. East Asians prefer moderation or compromise, which is similar to the golden thought advocated by Confucian culture. However, Westerners reject seemingly contradictory phenomenon, believing that contradiction violates the formal logic proposed by Aristotle (Nisbett, Peng, Choi, & Norenzayan, 2001), so contradiction must be resolved or integrated. Third, the perception of interconnectedness means that East Asians pay more attention to the relationship between the whole and the parts of things. East Asians believe that all objects, people, systems, and ideas have a permanent relationship. However, Westerners pay more attention to the focal object and ignore the specific context of the object (Nisbett et al., 2001).

Research gap

Previous work has examined whether individuals' multicultural experiences, such as living abroad, travelling abroad, or mere exposure to foreign culture would elicit subtle but profound changes in psychological processes and behavioral patterns. Extant work, however has not looked at how Chinese international students' multicultural experiences affect their mental processes and behavioral patterns. Moreover, a large amount of evidence shows that East Asians are more likely to display dialectical thinking, while Westerns are more likely to display analytical thinking; empirical evidence for this distinction includes holistic cognition, tolerance for contradiction and expectation of change such as individuals' judgments on the future trends of stocks (Ji, Nisbett, & Su, 2001). Despite the growing body of work pertaining to multicultural experiences and Chinese international students as well as the large body of work on dialectical thinking, there has been little work directly looking at whether and how Chinese international students' experiences studying abroad affect their systems of thought and dialectical thinking. Our current work therefore sought to directly examine how Chinese international students' experiences studying abroad in diverse regions would promote dialectical thinking.

The current research

The objectives of our current work are twofold. First, we aim to test if participants would be more likely to tolerate contradictory scientific statements when primed with studying abroad experiences, relative to travelling abroad experiences, hometown experiences and a control condition. Second, we aimed to see if this effect varies across differing host cultures.

Past research has documented cultural differences in tolerance of contradiction. Peng and Nisbett observed that members of East Asian (i.e., Chinese, Japanese, Korean) are more likely to display tolerance and acceptance of conflicting elements or events. As they have articulated in their article, they asserted that "holistic thinkers tend to engage in reasoning involving contradictions that tolerate opposites, whereas analytic thinkers tend to engage in reasoning involving contradiction that chooses one of two opposing propositions (Peng & Nisbett, 1999; Spencer-Rodgers et al., 2018). Little work, however, has looked at whether this pattern of thought can be shifted around by increasing multicultural experiences or by temporarily inducing a host culture among cultural movers. Would individuals with richer multicultural experiences tend to be more dialectical? Would studying abroad experiences enhance dialectical thinking? Our current work seeks to test this novel research question.

Considering that the cultural mobility patterns of Chinese international students are from China to mostly Western countries such as the U.S., the U.K., Canada, Germany, Australia, etc., it is plausible that Chinese international students would adopt those cultures' typical way of thinking, which is analytical thinking, as the acculturation process broadens and deepens. Conversely, it is also likely that studying abroad experiences lead Chinese international students to reinforce dialectical thinking due to the demanding acculturation process. We therefore propose the following two competing predictions:

H1: Studying abroad experiences make Chinese international students more likely to adopt analytical thinking.

H2: Studying abroad experiences make Chinese international students more likely to enhance dialectical thinking.

We argue that the second hypothesis is more theoretically plausible. Existing work has found that multicultural experiences can enhance cognitive complexity, increase openness personality, and reduce outgroup bias. One of the core features of dialectical thinking is tolerating contradictions, which represents that two things or two viewpoints that seem contradictory can co-exist and be compatible with each other. Therefore, we infer that when individuals encounter or interact with foreign cultural members, their cognitive flexibility and openness to experiences will likely increase. Thus, their degrees of tolerance for contradictions may also be enhanced due to increased integrative complexity (Tadmor, Galinsky, & Maddux, 2012). Our current work will provide direct evidence to address this empirical question.

Methods

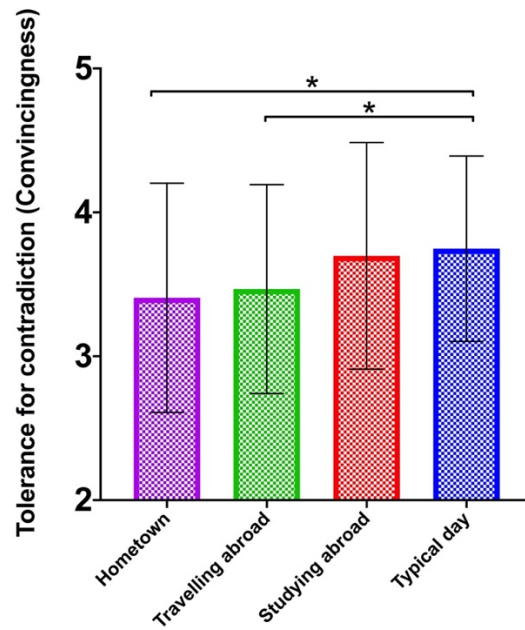
Participants and procedures

Through an online platform we recruited 258 Chinese international students who are currently studying abroad. These students are mainland Chinese students who are currently pursuing varying degrees (e.g., bachelor, masters, Ph.D., postdoc) in many differing cultural regions (e.g., the United States, the UK, Germany, Australia, etc.). Our experiment is divided into three parts. The first part is cultural priming. Based on previous work (Maddux & Galinsky, 2009), we adapted the multicultural experiences paradigm. Participants were randomly assigned into the following four conditions: studying abroad, traveling abroad,

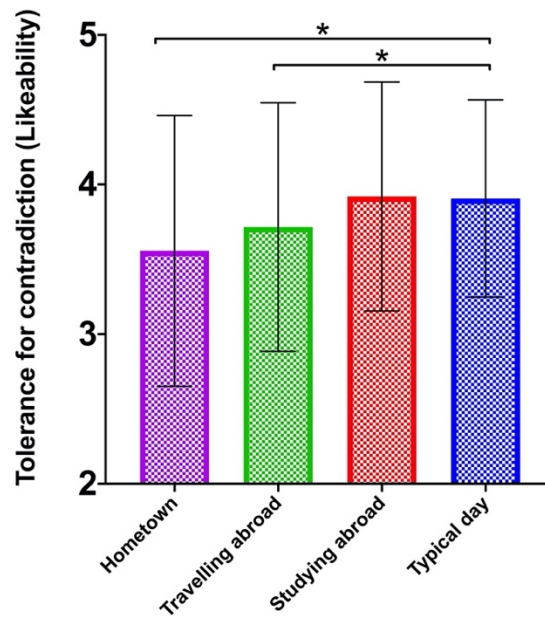
hometown, and control condition. Then participants were asked to write no less than 150 words in 5 minutes to describe their corresponding cultural experiences (see Appendix A for instructions and materials). The second part was the measurement of dialectical thinking. Based on the classic measures of dialectical thinking (Peng & Nisbett, 1999), we collected scientific discoveries in the fields of natural sciences, social sciences and humanities in the scientific literature within the last three years, and then modified these scientific discoveries into two conflicting scientific statements (see Appendix B for all the materials). In the third part, we collected demographic variables. Participants were asked to indicate their gender, age, education level, socioeconomic status, current study abroad country and so forth.

Results

A total of 265 Chinese international students participated in our experiment. After deleting those who failed the attention check items, 258 participants were included in our analyses. According to Peng and Nisbett (1999), two scores represent the degree of tolerance for contradiction: convincingness ($M=3.55$, $SD=0.76$) and likeability ($M=3.75$, $SD=0.83$). We then conducted an ANOVA analysis. The results suggested that participants were more tolerant of contradictory scientific statements under the studying abroad priming condition than hometown culture or traveling abroad priming or the control condition, $F(1,151) = 4.23$, $p < .05$, $\eta^2 = .03$. In other words, when participants were manipulated to mentally stimulate the host culture in which they are currently studying, their dialectical thinking increased, at least temporarily. More specifically, they reported that two seemingly conflicting statements could co-exist and did not contradict each other. When participants were manipulated to mentally experience hometown culture or a traveling culture, their dialectical thinking was not elevated. In other words, they reported that the two seemingly conflicting views were indeed incompatible with each other (see Figure 1 and Figure 2).



Caption of Figure 1: tolerance for contradiction as measured by the convincingness of both statements among four priming conditions



Caption of Figure 2: tolerance for contradiction as measured by the likeability of both statements among four priming conditions

Discussion

Our current work is among the first to provide direct evidence to support the claim that Chinese international students' studying abroad experience promotes dialectal thinking. Our data suggests that Chinese international students are more likely to accept contradictory

scientific statements when primed with studying abroad experiences. This finding holds true regardless of their host culture (e.g., North America, West Europe, East Asia, etc.). We have also observed consistent evidence between the two indicators of tolerance for contradiction: convincingness and likeability, meaning that Chinese international students were more likely to believe that the two seemingly conflicting scientific statements are both persuasive and rated them favorably.

Why would priming studying abroad experience enhance dialectical thinking? Previous work indicated that priming the yin-yang symbol among European Americans led them to anticipate more changes in judgments and behaviors (Alter & Kwan, 2009). This finding suggests that temporarily priming cultural experiences could shift participants' dialectical thinking. Our results indicated that when participants recalled their studying abroad experiences in their respective host country (e.g., the United States, the UK, Germany, Australia, etc.), they were more likely to show greater tolerance of contradiction. We provide one possible interpretation for this finding. Why would inducing intensive foreign cultural experiences (i.e., studying abroad) rather than superficial foreign cultural experiences (travelling abroad) alter international students' system of thought? The underlying processes may be partly explained by integrative complexity (Tadmor et al., 2012). Integrative complexity is a particular information-processing style which represents the ability to integrate differing perspectives or establish the conceptual connections among differentiated dimensions (Suedfeld & Bluck, 1993). With richer and deeper foreign experiences, especially largely distinct cultural contexts, participants would be more likely to encounter multiple perspectives (e.g., Western vs. Eastern cultural traditions), incorporate complex or even competing systems of thought (e.g., holistic vs. analytical thinking), and differing value systems (e.g., individual rights and collective duties). They therefore have to reconcile contradictory viewpoints or even competing thought patterns. These demanding processes may play a role in promoting Chinese international students' greater tolerance of contradiction, which manifested in endorsing competing scientific statements across a variety of domains (i.e., natural sciences, humanities and social sciences). As Chinese international students experience cultural shock, cultural conflict, and cultural integration through the course of cultural adaptation, their cognitive complexity may increase as they become more adept at reconciling competing perspectives and cultural differences. This theoretical account awaits future work to validate it.

Contributions and implications

Our work has important contributions to the extant literature. First, past work has not looked at whether multicultural experiences could affect ways of thinking. Our findings are among the first to demonstrate that studying abroad experiences does have an impact on Chinese international students' dialectical thinking, specifically tolerance for contradiction. Second, our work adds to the growing literature that the psychological outcome of Chinese international students' studying abroad experiences is not limited to academic achievements and mental health domains. Studying abroad experiences may elicit profound changes in college students' cognitive, emotional, motivational and behavioral domains. Third, although cultural differences in dialectical thinking have been well-documented, dialectical thinking is a dynamic, flexible, and malleable construct. Dialectal thinking can therefore be shifted around even by subtle experimental manipulations. Our work has shed new light on this line of research. Since we live in the era of globalization, more work is needed to probe the important research question: how and why does studying abroad reshape international students' system of thought?

Limitations and future directions

Some limitations also apply to our work. First, due to the difficulties of collecting data during the COVID-19 outbreak, our limited sample size reduced our statistical power. Future replication efforts should use a larger sample size to detect the relatively small effect. Second, as we only examined one of three indicators of dialectal thinking, future work should determine whether Chinese international students' expectation of change and perception of interconnectedness are also altered by studying abroad experiences. Third, since human behavior is the product of complex interactions between personal dispositions and contextual factors, future work should examine whether Chinese international students' personality characteristics play a role in moderating the effects of multicultural experiences on their system of thought.

Conclusion

Drawing upon a cultural priming experiment, we observed that Chinese international students were more likely to show tolerance for contradiction when they were primed with their host culture rather than primed with their home culture or brief travels. Future work should examine the psychological underpinnings of this effect, which we hope will encourage

researchers, educators, and policy makers to facilitate both basic research and applied work in the domain of international education.

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